

Research Description:

The Naval Research Laboratory (NRL) Marine Meteorology Division (MMD) is seeking applicants for a postdoc opportunity in quantum computing beginning in October 2023.

This project involves developing novel quantum computing algorithms to create fluid dynamics and numerical weather prediction models. At its core, this boils down to solving non-linear partial differential equations. This is a major challenge since quantum computers are not equipped to solve non-linear equations. We therefore implement linearization methods to transform the problem into a linear one and employ well known quantum computing methods to efficiently solve the linear system of equations. In this project, we will explore new linearization methods that exactly represent the governing equations for fluid dynamics and weather prediction. The exact representation of these equations will lead to improved solutions compared with the current state of the art quantum methods.

Lab Location:

Naval Research Laboratory Marine Meteorology Division
Monterey, CA

Advisor:

Dr. Liang Xu
Naval Research Laboratory
7 Grace Hopper Ave.
Monterey, CA 93943
Phone: 831-656-5159
Email: Liang.Xu@nrlmry.navy.mil